

# **Antibiotic Resistance in *Salmonella* Enterica Serotypes Heidelberg, Kentucky, and Thompson Isolated From Human and Broiler Chicken Sources**

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**Background:** Chickens are a common source of *Salmonella*. Antibiotics are used in chicken production raising concerns that chicken food products may be a source of resistant salmonella for humans.

**Methods:** In 1998, National Antimicrobial Resistance Monitoring System (NARMS) isolates were susceptibility tested to 17 antibiotics by Sensititre™ microbroth dilution and classified by NCCLS breakpoints, where defined. Comparison of serotypes among all animal species indicated that *Salmonella* Heidelberg(H), Kentucky(K) and Thompson(T) were most often isolated from chicken, accounting for 55.0% of chicken and 8.0% of human isolates. Human serotypes were separated into two groups: HKT (n=107), and another group composed of the remaining serotypes, non-HKT (n=1330).

**Results:** Comparison between the two human groups indicated similar prevalence of resistance for all antibiotics tested except for: chloramphenicol, gentamicin, kanamycin, and streptomycin. The largest difference between human groups was observed for gentamicin where 15.9% of the HKT group and 1.8% of the non-HKT group were resistant; the HKT group was more similar to the chicken isolates, (15.5%). Comparison of human HKT and Chicken groups indicated similarity in prevalence of resistance for all antibiotics except kanamycin where Chicken prevalence (3.2%) was more similar to the human non-HKT (5.2%).

**Discussion:** The higher prevalence of gentamicin resistance between human groups was a discrepancy not seen with other antibiotics. In the chicken industry there is widespread injection of broiler eggs with gentamicin prior to hatch.

**Conclusion:** The greater proportion of gentamicin resistance in persons ill with salmonella and submitting isolates to NARMS occurred in serotypes that were predominantly isolated from chickens. Use of gentamicin in the poultry industry needs to be examined in light of these findings.

## **Suggested citation:**

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